UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,204	09/26/2003	Yigal Bejerano	Y. BEJERANO 2-48	8936

47394 7590 06/04/2008

HITT GAINES, PC
ALCATEL-LUCENT
PO BOX 832570
RICHARDSON, TX 75083

EXAMINER	
GUYTON, PHILIP A	

ART UNIT	PAPER NUMBER
2113	

NOTIFICATION DATE	DELIVERY MODE
06/04/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket@hittgaines.com

Office Action Summary	Application No.	Applicant(s)	
	10/672,204	BEJERANO ET AL.	
	Examiner	Art Unit	
	PHILIP GUYTON	2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6,8,10-13 and 15-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6,8,10-13 and 15-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-6, 8, 10-13, and 15-22 are rejected under 35 U.S.C. 102(b) as being anticipated by "Optimizing probe selection for fault localization" by Brodie et al. (hereinafter Brodie).

With respect to claim 1, Brodie discloses a system for monitoring link delays and faults in an IP network (abstract – *"We investigate…find a nearly-optimal set"*), comprising:

a monitoring station identifier that computes a set of monitoring stations for a plurality of network trees (figure 1 – each path a network tree) that covers links, including at least one link that is not included in at least one of said network trees (figure 1 – P_{15} does not include all links), in at least a portion of said network (1. Introduction, paragraph 3 – *"To use probes, probing stations must first be selected at one or more locations in the network"*), wherein each of said monitoring stations monitors one network tree, at least one monitoring station also monitoring said sat least one link (figure 3 – every node and path monitored by at least N_1 or N_4); and wherein said set of

monitoring stations is selected as a minimal set (4.2 Results, paragraph 3 – *"Although it is sufficient…size of the probe set"* and figure 10 and 3.2 Determining the Diagnostic Power of a Set of Probes, paragraph 3 – *"We should point out…number of probes needed"*); and

a probe message identifier, coupled to said monitoring station identifier, that computes a set of probe messages to be transmitted by at least ones of said set of monitoring stations such that said delays and faults in specific links spanning said set of monitoring stations, including said at least one link, can be determined (1. Introduction, paragraph 4 – *"As a first step towards this goal…problems anywhere in the network"*).

With respect to claim 3, Brodie discloses wherein said set of probe messages is a minimal set (2.1 Problem Formulation, paragraph 1 – *"Finding the minimal set of probes…is the number of probes"*).

With respect to claim 4, Brodie discloses wherein said set of monitoring stations covers links in an entirety of said network (3.1 Determining the Initial Probe Set, paragraph 3 – *"A probe can be sent…and send a probe to every node"*).

With respect to claim 5, Brodie discloses wherein said probe messages have a selected one of:

identical message costs, and

message costs that are based on a number of hops to be made by said probe messages (3.1 Determining the Initial Probe Set, paragraph 3 – *"A probe can be sent to any…least-cost) path through the network"*).

With respect to claim 6, Brodie discloses wherein said probe message identifier, coupled to said monitoring station identifier, that employs polynomial-time approximation (2.1 Problem formulation, paragraph 1 and 5. Related work, paragraph 3) to compute a set of probe messages to be transmitted by at least ones of said set of monitoring stations such that said delays and faults in specific links spanning said set of monitoring stations can be determined (1. Introduction, paragraph 4 – *"As a first step towards this goal…problems anywhere in the network"*).

Claims 8 and 10-13 are a method as performed by the system of claims 1 and 3-6, and are rejected under the same rationale.

With respect to claim 15, Brodie discloses a system for monitoring link delays and faults in an IP network (abstract – *"We investigate…find a nearly-optimal set"*), comprising:

a monitoring station identifier that employs polynomial-time approximation algorithms (2.1 Problem formulation, paragraph 1, 4.2 Results, (i) Probe Set Size, (ii) Number of Probe Stations, and 5. Related work, paragraph 3) to compute a selected minimal set of monitoring stations for a plurality of network trees (figure 1 – each path a network tree) that covers links, including at least one link that is not included in at least one of said network trees (figure 1 – P_{15} does not include all links), in at least a portion of said network (1. Introduction, paragraph 3 – *"To use probes, probing stations must first be selected at one or more locations in the network"*), wherein each of said monitoring stations monitors one network tree, at least one monitoring station also

monitoring said at least one link (figure 3 – every node and path monitored by at least N_1 or N_4); and

a probe message identifier, coupled to said monitoring station identifier, that employs polynomial-time approximation (2.1 Problem formulation, paragraph 1 and 5. Related work, paragraph 3) to compute a set of probe messages to be transmitted by at least ones of said set of monitoring stations such that said delays and faults in specific links spanning said set of monitoring stations, including said at least one link, can be determined (1. Introduction, paragraph 4 – *"As a first step towards this goal…problems anywhere in the network"*).

With respect to claim 16, Brodie discloses wherein said set of monitoring stations covers links in an entirety of said network (3.1 Determining the Initial Probe Set, paragraph 3 – *"A probe can be sent…and send a probe to every node"*).

With respect to claim 17, Brodie discloses wherein said probe messages have a selected one of:

identical message costs, and

message costs that are based on a number of hops to be made by said probe messages (3.1 Determining the Initial Probe Set, paragraph 3 – *"A probe can be sent to any…least-cost) path through the network"*).

With respect to claim 18, Brodie discloses wherein said minimal set of monitoring stations guarantees delay and fault monitoring of all active links in a presence of at most K-1 failures (3.2 Determining the Diagnostic Power of a Set of Probes, paragraphs 2-3 – *"Since each column is unique…number of probes needed"*).

With respect to claim 19, Brodie discloses wherein said minimal set of monitoring stations always covers said links in said at least said portion of said network (3.1 Determining the Initial Probe Set, paragraph 3 – *""A probe can be sent…a probe to every node*).

With respect to claim 20, Brodie discloses a system for monitoring link delays and faults in an IP network (abstract – *"We investigate…find a nearly-optimal set"*), comprising:

a monitoring station identifier that computes a set of monitoring stations for a plurality of network trees (figure 1 – each path a network tree) that covers links, including at least one link that is not included in at least one of said network trees (figure 1 – P_{15} does not include all links), in at least a portion of said network (1. Introduction, paragraph 3 – *"To use probes, probing stations must first be selected at one or more locations in the network"*), wherein each of said monitoring stations monitors one network tree, at least one monitoring station also monitoring said at least one link (figure 3 – every node and path monitored by at least N_1 or N_4), wherein said set of monitoring stations is selected as a minimal set (4.2 Results, paragraph 3 – *"Although it is sufficient…size of the probe set"* and figure 10 and 3.2 Determining the Diagnostic Power of a Set of Probes, paragraph 3 – "*We should point out…number of probes needed*"); and

a probe message identifier, coupled to said monitoring station identifier, that computes a set of probe messages to be transmitted by at least ones of said set of monitoring stations such that said delays and faults in specific links spanning said set of

monitoring stations, including said at least one link, can be determined (1. Introduction, paragraph 4 – *"As a first step towards this goal…problems anywhere in the network"*),

wherein said minimal set of stations satisfies at least two constraints:

a covering set constraint (3.1 Determining the Initial Probe set, paragraph 3 – *"This creates a candidate set of…a probe to every node"* and 4.2 Results, paragraph 3 – *"Although it is sufficient…minimal probe set size decreases"*); and

a covering assignment constraint (3.1 Determining the Initial Probe set, paragraph 3 – *"A probe can be sent to…a probe to every node"* and figure 3).

With respect to claim 21, Brodie discloses wherein said minimal set of monitoring stations is an optimal set of monitoring stations (4.2 Results, paragraph 3 – *"Although it is sufficient…size of the probe set"* and figure 10 and 3.2 Determining the Diagnostic Power of a Set of Probes, paragraph 3 – *"We should point out…number of probes needed"*).

Claim 22 is a method as performed by the system of claim 20, and is rejected under the same rationale.

Response to Arguments

3. Applicant's arguments filed 27 February 2008 have been fully considered but they are not persuasive. Applicant argues Brodie does not teach or disclose a monitoring station identifier that computes a set of monitoring stations in a plurality of network trees that covers links, including at least one link that is not included in at least one of the network trees, at least one monitoring station also monitoring the at least one

link, in at least a portion of the network, as recited in the amended claims. The examiner respectfully disagrees. While Brodie does teach wherein a single probe station may be used (4.2 Results, paragraph 3 – *"Although it is sufficient…size of the probe set"* and figure 10), which in this case is the minimal set, the same is not true for every case. Shown in figure 3 is a system comprising nodes N_1 through N_6, with probe stations being N_1 and N_4. According to Brodie, a single probe station could be used, but having two probe stations minimizes the set of probes needed to diagnose every node failure (3.2 Determining the Diagnostic Power of a Set of Probes, paragraph 3 – *"We should point out…number of probes needed"*). Thus, in this case, the minimal set is two probe stations. Accordingly, there is one link that is not included in a tree that is monitored by N_1. Using minimum probe set of P_{15}, P_{16}, and P_{42}, the link to node N_3 is not included in the network tree monitored by P_{15}. However, the node is in the tree monitored by P_{42}. Thus, Brodie discloses a monitoring station identifier that computes a set of monitoring stations in a plurality of network trees that covers links, including at least one link that is not included in at least one of the network trees, at least one monitoring station also monitoring the at least one link, in at least a portion of the network, as recited in the claims.

Applicant additionally argues Brodie does not teach monitoring links, but monitors nodes instead. However, Brodie clearly discloses monitoring both nodes and links (2.1 Problem Formulation, paragraph 3 – *"If a probe is successful…link fails to return"*).

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHILIP GUYTON whose telephone number is (571) 272-3807. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PG
5/27/08

/Robert W. Beausoliel, Jr./
Supervisory Patent Examiner, Art Unit 2113